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# FACT SHEET

# Proposed Rule - Protection of Stratospheric Ozone: New Listings of Substitutes; Changes of Listing Status; Reinterpretation of Unacceptability for Closed Cell Foam Products under the Significant New Alternatives Policy Program; and Revision of Clean Air Act Section 608's Venting Prohibition for Propane

## EPA's Significant New Alternatives Policy Program

Under section 612 of the Clean Air Act (CAA), EPA reviews substitutes within a comparative risk framework. More specifically, section 612 provides that EPA must prohibit the use of a substitute where EPA has determined that there are other available substitutes or potentially available substitutes that pose less overall risk to human health and the environment. Thus, EPA's Significant New Alternatives Policy (SNAP) program, which implements section 612, does not provide a static list of alternatives but instead evolves the list as the EPA makes decisions informed by our overall understanding of the environmental and human health impacts as well as our current knowledge about available substitutes. In the more than twenty-two years since the initial SNAP rule was promulgated, EPA has modified the SNAP lists many times, most often by expanding the list of acceptable substitutes, but in some cases by prohibiting the use of substitutes previously listed as acceptable.

Global warming potential (GWP) is one of several criteria EPA considers in the overall evaluation of alternatives under the SNAP program. During the past two decades, the general science on climate change and the potential contributions of greenhouse gases (GHGs) such as HFCs to climate change have become better understood. Most HFCs are potent GHGs and although they represent a small fraction of the current total volume of GHG emissions, their warming impact is very strong. HFC emissions are projected to increase substantially and at an increasing rate over the next several decades if left unregulated. In the United States, emissions of HFCs are increasing more quickly than those of any other GHGs, and globally they are increasing 10-15% annually.

### Proposed Rule

***What is EPA proposing?***

- List as acceptable subject to use conditions, list as unacceptable, and change the status of several substances
- Exempt propane from the CAA's section 608 venting prohibition
- Clarify status of acceptable fire suppression alternative

***Which industrial sectors are included?***

- Refrigeration & Air Conditioning
- Fire Suppression & Explosion Protection
- Foam Blowing

***Who is affected?***

- Chemical producers, some manufacturers, and some end-users of equipment and products using refrigerants, fire suppressants, and foam blowing agents

***When?***

- Starting 30 days after publication of a final rule; see table for dates

## The President's Climate Action Plan

The President's June 2013 Climate Action Plan (CAP) states that, "to reduce emissions of HFCs, the United States can and will lead both through international diplomacy as well as domestic actions." Furthermore, the CAP states that EPA will "use its authority through the Significant New Alternatives Policy Program to encourage private sector investment in low-emissions technology by identifying and approving climate-friendly chemicals while prohibiting certain uses of the most harmful chemical alternatives." Since the CAP was announced, EPA has taken a number of actions to both expand the list of acceptable alternatives under SNAP as well as to change the status of certain listed substitutes. On July 20, 2015 (80 FR 42870), EPA issued a final regulation that was our first effort to take a broader look at the SNAP lists, where we focused on those listed substitutes that have a high GWP relative to other alternatives in specific end-uses, while otherwise posing comparable levels of risk.

## Today's Action

In this action, EPA is proposing to list a number of substances as acceptable, subject to use conditions; to list several substances as unacceptable; and to modify the listing status for certain substances from acceptable to unacceptable or acceptable, subject to narrowed use limits. Consistent with CAA section 612 as we have historically interpreted it under the SNAP program, EPA is proposing both initial listings and certain modifications to the current lists based on our evaluation of the substitutes addressed in this action using the SNAP criteria for evaluation and considering the current suite of other alternatives for the specific end-use at issue. For particular substances, EPA found significant potential differences in risk with respect to one or more specific criteria, such as flammability, toxicity, or local air quality concerns, while otherwise posing comparable levels of risk to those of other alternatives in specific end-uses. EPA is also proposing that the existing listing decisions for foam blowing agents apply to closed cell foam products and products containing closed cell foam. In addition to proposing to list propane as acceptable, subject to use conditions, as a refrigerant in new self-contained commercial ice machines, in new water coolers, and in new very low temperature refrigeration equipment, EPA is also proposing to exempt propane in these end-uses from the venting prohibition under CAA section 608. EPA is also proposing to list as acceptable, subject to use conditions, HFO-1234yf in newly manufactured medium-duty passenger vehicles (MDPVs), heavy-duty (HD) pickup trucks, and complete HD vans, and 2-bromo-3,3,3-trifluoropropene (2-BTP) in the fire suppression and explosion protection sector. Finally, this proposed rule would clarify the listing for Powdered Aerosol D (Stat-X®), which is currently listed as both "acceptable subject to use conditions" and "acceptable," by removing the earlier listing of "acceptable subject to use conditions."

## Summary of Proposed Regulatory Provisions

### PROPOSED ACCEPTABLE ALTERNATIVES, WITH USE CONDITIONS

| End-Uses | Substitutes | Proposed Effective Date |
|---|---|---|
| **Refrigeration** | | |
| Commercial ice machines (new) | Propane | 30 days after publication of a final rule |
| Water coolers (new) | Propane | 30 days after publication of a final rule |
| Very low temperature refrigeration equipment (new) | Propane | 30 days after publication of a final rule |
| **Motor Vehicle Air Conditioning (MVAC)** | | |
| Medium-duty passenger vehicles (MDPVs), heavy-duty (HD) pickup trucks, and complete HD vans (newly manufactured) | HFO-1234yf | 30 days after publication of a final rule |
| **Fire Suppression and Explosion Protection** | | |
| Total flooding agent for use in engine nacelles and auxiliary power units (APUs) on aircraft | 2-BTP | 30 days after publication of a final rule |
| Streaming agent for use in aircraft | 2-BTP | 30 days after publication of a final rule |

## PROPOSED UNACCEPTABLE ALTERNATIVES

| End-Uses | Substitutes | Proposed Effective Date |
|---|---|---|
| **Air Conditioning (AC)** | | |
| Residential and light commercial AC and heat pumps – unitary split AC systems and heat pumps (retrofit) | All ASHRAE Flammability Class 3 Refrigerants[a] | 30 days after publication of a final rule |
| Residential and light commercial AC and heat pumps (new) | Propylene, R-443A | 30 days after publication of a final rule |
| Centrifugal chillers and positive displacement chillers (new) | Propylene, R-443A | 30 days after publication of a final rule |
| **Refrigeration** | | |
| Cold storage warehouses (new) | Propylene, R-443A | 30 days after publication of a final rule |

[a] All refrigerants identified as and meeting the criteria for flammability Class 3 in American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 34–2013. All refrigerants meeting the criteria for flammability Class 3 include, but are not limited to, refrigerant products sold under the names R-22a, 22a, Blue Sky 22a refrigerant, Coolant Express 22a, DURACOOL-22a, EC-22, Ecofreeeze EF-22a, EF-22a, Envirosafe 22a, ES-22a, Frost 22a, HC-22a, Maxi-Fridge, MX-22a, Oz-Chill 22a, Priority Cool, and RED TEK 22a.

## PROPOSED CHANGE OF LISTING STATUS

| End-Uses | Substitutes | Proposed Effective Date |
|---|---|---|
| **Air Conditioning** | | |
| Centrifugal chillers (new) | FOR12A, FOR12B, HFC-134a, HFC-227ea, HFC-236fa, HFC-245fa, R-125/134a/600a (28.1/70/1.9), R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-410A, R-410B, R-417A, R-421A, R-422B, R-422C, R-422D, R-423A, R-424A, R-434A, R-438A, R-507A, RS-44 (2003 composition), and THR-03 | Unacceptable, except as otherwise allowed under a narrowed use limit, as of January 1, 2024 |
| Centrifugal chillers (new) | HFC-134a for military marine vessels and for human-rated spacecraft and related support equipment | Acceptable, subject to narrowed use limits, as of January 1, 2024 |
| Centrifugal chillers (new) | R-404A for human-rated spacecraft and related support equipment | Acceptable, subject to narrowed use limits, as of January 1, 2024 |
| Positive displacement chillers (new) | FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/134a/600a (28.1/70/1.9), R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-410A, R-410B, R-417A, R-421A, R-422B, R-422C, R-422D, R-424A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 composition), SP34E, and THR-03 | Unacceptable, except as otherwise allowed under a narrowed use limit, as of January 1, 2024 |
| Positive displacement chillers (new) | HFC-134a for military marine vessels and for human-rated spacecraft and related support equipment | Acceptable, subject to narrowed use limits, as of January 1, 2024 |
| Positive displacement chillers (new) | R-404A for human-rated spacecraft and related support equipment | Acceptable, subject to narrowed use limits, as of January 1, 2024 |
| **Refrigeration** | | |
| Cold storage warehouses (new) | HFC-227ea, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-423A, R-424A, R-428A, R-434A, R-438A, R-507A, and RS-44 (2003 composition) | Unacceptable, as of January 1, 2023 |

| End-Uses | Substitutes | Proposed Effective Date |
|---|---|---|
| Retail food refrigeration – refrigerated food processing and dispensing equipment (new) | HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 formulation | Unacceptable, as of January 1, 2021 |
| Household refrigerators and freezers (new) | FOR12A, FOR12B, HFC-134a, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, and THR-03 | Unacceptable, as of January 1, 2021 |
| **Foam Blowing** | | |
| Rigid polyurethane (PU) high-pressure two-component spray foam | HFC-134a, HFC-245fa, and blends thereof; blends of HFC-365mfc with at least four percent HFC-245fa, and commercial blends of HFC-365mfc with 7 to 13 percent HFC-227ea and the remainder HFC-365mfc; and Formacel TI[a] | • Unacceptable for all uses, except military or space-and aeronautics–related applications, as of January 1, 2020<br>• Acceptable, subject to narrowed use limits, for military or space-and aeronautics–related applications, as of January 1, 2020<br>• Unacceptable for military or space-and aeronautics–related applications as of January 1, 2025 |
| Rigid PU low-pressure two-component spray foam | HFC-134a, HFC-245fa, and blends thereof; blends of HFC-365mfc with at least four percent HFC-245fa, and commercial blends of HFC-365mfc with 7 to 13 percent HFC-227ea and the remainder HFC-365mfc; and Formacel TI[b] | • Unacceptable for all uses, except military or space-and aeronautics–related applications, as of January 1, 2021<br>• Acceptable, subject to narrowed use limits, for military or space-and aeronautics–related applications, as of January 1, 2021<br>• Unacceptable for military or space-and aeronautics–related applications as of January 1, 2025 |
| Rigid PU one-component foam sealants | HFC-134a, HFC-245fa, and blends thereof; blends of HFC-365mfc with at least four percent HFC-245fa, and commercial blends of HFC-365mfc with 7 to 13 percent HFC-227ea and the remainder HFC-365mfc; and Formacel TI[c] | Unacceptable, as of January 1, 2020 |
| All foam blowing end-uses except for rigid PU spray foam | All HFCs and HFC blends previously listed as unacceptable for space-and aeronautics–related applications as of January 1, 2022 | Unacceptable for space-and aeronautics–related applications as of January 1, 2025 |
| Flexible PU foam | Methylene chloride | Unacceptable, as of 30 days after publication of a final rule |
| Integral skin PU foam | Methylene chloride[d] | Unacceptable, as of January 1, 2017 |
| Polyolefin foam | Methylene chloride[e] | Unacceptable, as of January 1, 2020 |

| End-Uses | Substitutes | Proposed Effective Date |
|---|---|---|
| **Fire Suppression and Explosion Protection** | | |
| Total flooding | Perfluorocarbons (PFCs) ($C_3F_8$ and $C_4F_{10}$) | Unacceptable, as of one year after publication of a final rule |

[a] Closed cell foam products and products containing closed cell foams manufactured on or before January 1, 2020, may be used after that date.
[b] Closed cell foam products and products containing closed cell foams manufactured on or before January 1, 2021, may be used after that date.
[c] Closed cell foam products and products containing closed cell foams manufactured on or before January 1, 2020, may be used after that date.
[d] Closed cell foam products and products containing closed cell foams manufactured on or before January 1, 2017, may be used after that date.
[e] Closed cell foam products and products containing closed cell foams manufactured on or before January 1, 2020, may be used after that date.

## OTHER PROPOSED CHANGES

| End-Uses | Proposed Changes |
|---|---|
| All Foam Blowing End-Uses | Prohibit use of closed cell foam products and products that contain closed cell foam manufactured with an unacceptable foam blowing agent on or after the later of:<br>1) one year after publication of a final rule, or<br>2) the date when the foam blowing agent is unacceptable. |
| Fire Suppression and Explosion Protection – Total Flooding | Clarify the listing for Powdered Aerosol D (Stat-X®), which is currently listed as both "acceptable" and "acceptable subject to use conditions," by removing the listing as "acceptable subject to use conditions" 30 days after publication of a final rule |